

# DRY CLEANING POLLUTION PREVENTION CHARRETTES



## Final Report

### EXECUTIVE SUMMARY

In the Fall of 1997, the Environmental Finance Center for EPA Region 9 (EFC9) received a grant from the Environmental Finance Center for EPA Region 5 (EFC5), in conjunction with the US EPA, to target a specific industry and produce a plan for stimulating more Pollution Prevention (P2) activities in that San Francisco Bay Area industry. After consultation with EFC5, EPA Region 9 and the Bay Area Hazardous Waste Reduction Committee, EFC9 determined that the dry cleaning industry would make the most suitable target.

As a result, between December 1997 and October 1998, EFC9 conducted numerous informal interviews with regional, county and local government agencies including economic development agencies, small business organizations and representatives, community organizations, dry cleaners, environmental non-profit organizations, and industry insiders concerning the dry cleaning industry. In addition, EFC9 organized and held two charrettes<sup>†</sup> to identify future pollution prevention approaches and strategies to use with

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<sup>†</sup> A charrette is best described as a problem-solving focus group.

East Bay dry cleaners. The goal of these informal interviews and charrettes, more specifically, was to solicit the help of dry cleaners, regulatory agencies, local governments and environmental non-profit organizations to determine effective ways to encourage dry cleaners to reduce perchlorethylene (perc) usage, a chlorinated hydrocarbon synthetic solvent, without reducing their profits.<sup>1</sup> The following report presents an overview of both charrettes and incorporates knowledge gained through the numerous informal interviews described above.

The first Dry Cleaning Pollution Prevention Charrette was held on Wednesday May 19, 1998 in Berkeley, CA from 10:00 am to 3:00 p.m. and was attended by 18 individuals — two dry cleaners and one dry cleaning association representative, seven representatives from government agencies and eight representatives of non-profit organizations. The second

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<sup>1</sup> Approximately 80 percent of dry-cleaning plants use perchloroethylene or “perc”. According to US EPA perc is a “probable human carcinogen”. Consequently, various federal and state agencies developed stringent regulations to control its use and disposal. These same agencies are also trying to encourage reduced reliance on perc.

charrette was held in Oakland, CA on Sunday October 18 from 2:00 to 5:30 p.m. and was attended by 15 individuals — three dry cleaning operators, one intended operator, four representatives from government agencies and seven non-profit organization representatives.

Both charrettes were similarly structured, but focused on different issues. The Berkeley Charrette addressed the feasibility of increasing the amount of wet cleaning done at dry cleaning plants, while the Oakland Charrette examined the feasibility of adopting other fabricare technologies as well (i.e. petroleum-based solvents, CO<sub>2</sub> and Rynex).

Based on the outcomes of the two Dry Cleaning Pollution Prevention Charrettes, EFC9 has concluded that lack of adequate financing (as initially hypothesized) is not the primary barrier preventing dry cleaners from transitioning into alternative fabricare technologies. The barriers identified at the two charrettes are summarized below.

## Barriers To Alternative Fabricare Technologies

### ■ No Credible Health Impacts

East Bay dry cleaners don't necessarily believe that perc is bad for their health, and, even if it is, they have reduced perc usage significantly throughout the 1990s and feel that any potential health impacts have been mitigated through the their implementation of cleaner dry cleaning technologies.<sup>2</sup>

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<sup>2</sup> In California, dry cleaners must use "closed loop systems." These systems allow clothing to be washed and dried in the same machine so that no perc is emitted into the air while transferring wet clothing between the washer and dryer. In addition, these machines can recover perc used during garment cleaning for reuse.

### ■ Technical and Financial Unfeasibility

"Nothing can beat perc." Dry cleaners believe that alternative forms of fabricare are not as financially and technically feasible as perc. Specifically, dry cleaners think they are wet cleaning as much clothing as is feasible now; that petroleum-based solvents are not as effective as perc; that CO<sub>2</sub> is not technically or cost-effective; and that Rynex is not as effective as perc and in fact may even be a pollutant.

### ■ Uncertain Regulatory Environment

While dry cleaners feel that federal, state and local regulation of perc usage is overblown and redundant, they are also reluctant to adopt new technologies and/or solvents if they face an unknown and potentially even more cumbersome regulatory environment in the future.

### ■ Market Uncertainty

Dry cleaners do not think most consumers will be willing to pay the cost required to make wet cleaning a financially viable alternative and they think that consumers will be suspicious of any changes in garment cleaning processes.

## Recommendations

Clearly wet cleaning and other alternatives to dry cleaning face an uphill battle within the dry cleaning community. The general overall feeling among the cleaners seems to be "we've complied with your regulations, we run a clean operation, we would change if we could, but there are no viable alternatives. What more do you want!?"

Indeed, if the regulatory community wishes to pursue an overall policy of ultimately phasing out the use of perchlorethylene, they must do more than make vague assertions about the health hazards of perc and introduce

burdensome unfunded mandates that only serve to enhance the dry cleaners dislike and distrust of the regulators. In response to the often hostile environment that exists between government agencies and the dry cleaning community, EFC9 has compiled a number of recommendations culled from those made at the charrettes, that we believe will be most effective at helping dry cleaners and regulators overcome the barriers identified above.

### ■ Health Impacts

Regulators must clarify the human health impacts of perc. In addition, a simplified report summarizing the human health hazards of perc, including the science behind the conclusions should be prepared and distributed to trusted industry channels who will then make presentations at dry cleaning association meetings and share it in their publications. If dry cleaners can be convinced that using perc is hazardous for themselves and their employees, they are more likely to be open to adopting alternative technologies.

### ■ Technical Feasibility

Proof that alternative technologies work in a commercial setting must be demonstrated. Concise, easy to understand comparative information on alternative fabricare cleaning equipment, methods, solvents, techniques, etc. should be prepared in partnership with industry representatives who can then present the information to dry cleaners in their own languages.<sup>3</sup> Information on P2 alternatives should be provided as part of the business tax license process.

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<sup>3</sup> There are numerous immigrant communities involved in the Dry Cleaning Industry in the United States, and many do not speak and/or read English fluently. In the San Francisco Bay Area, the majority of dry cleaners are of Korean descent.

### Wet Cleaning

Convenient training opportunities in wet cleaning should be available. There is a shortage of reliable well-trained wet cleaning pressers.

### Petroleum-Based Solvents

Information on the full range of petroleum-based products should be made available through non-partisan industry associations.

### CO<sub>2</sub>, Rynex and Others

New developments that affect the feasibility of these alternatives should be monitored and shared with industry associations. Fabricare plants that use these alternatives should be publicized in industry association trade papers and journals and in the mainstream media.

### ■ Financial Feasibility

As in the case of technical feasibility, the financial feasibility of commercial fabricare establishments using alternative technologies should be analyzed. Short, easy to understand, comparative cost information on fabricare alternatives should be assembled and disseminated through trusted sources. Local governments would do well to recognize that dry cleaners create jobs for low-income urban residents.

### Wet Cleaning

Training to help dry cleaners maximize their wet cleaning should also be available.

### ■ Regulatory Concerns

Regulatory uncertainty for dry cleaning alternatives should be reduced. Dry cleaners must be assured that if they invest in a cleaner alternative technology today, they will not be subject to major regulatory changes before the equipment is fully amortized.

## ■ Market Uncertainty

The public is largely unaware of fabricare alternatives and should be educated without damaging the current industry. In addition, garment manufacturers do not normally include a “safe for wet cleaning” designation on their care labels. Regulators should work with the fabric and garment industries to help make fabricare alternatives more feasible and attractive.

### **Wet Cleaning**

There is an urgent need for consumer education to increase demand for wet cleaning. Market research should be conducted that identifies and characterizes actual wet cleaning customers who patronize wet cleaning shops nationally. Targeted marketing campaigns should be developed in regions to support wet cleaning operations.

## Next Steps

At both charrette, each participant identified the “next steps” their organization plans to take to follow-up on the numerous recommendations established during the charrettes. EFC9 will pursue the following steps to further educate dry cleaners and the public on the merits of alternatives to dry cleaning.

## ■ Target Potential Wet Cleaners

Through the charrettes, EFC9 has identified several dry cleaning operators who have expressed interest in expanding their wet cleaning services. We plan to work with them to determine what assistance they may require to expand their facilities. We will also work with entrepreneurs interested in opening new 100% wet cleaning plants in the East San Francisco Bay.

## ■ Educate Consumers

EFC9 will work with Ecology Action and local dry cleaning associations to develop a campaign to encourage consumers to increase the amount of clothing they have wet cleaned at dry cleaning establishments and reduce their dry cleaning demands.

## ■ Establish Fabricare Training Centers

EFC9 will look at the feasibility of establishing fabricare training centers in Region 9. We will work with dry cleaning industry associations and community groups and educational institutions in this endeavor.

# DRY CLEANING POLLUTION PREVENTION CHARRETTES

## Final Report

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### Background

In the Fall of 1997, the Environmental Finance Center for EPA Region 9 (EFC9) received a grant from the Environmental Finance Center for EPA Region 5 (EFC5), in conjunction with the US EPA to target a specific industry and produce a plan for stimulating more Pollution Prevention (P2) activities in that San Francisco Bay Area industry. After consultation with EFC5, EPA Region 9 and the Bay Area Hazardous Waste Reduction Committee, EFC9 determined that the dry cleaning industry would make the most suitable target.

As a result, between December 1997 and October 1998, EFC9 conducted numerous informal interviews with regional, county and local government agencies including economic development agencies, small business organizations and representatives, community organizations, dry cleaners, environmental non-profit organizations, and industry insiders concerning the dry cleaning industry. In addition, EFC9 organized and held two charrettes<sup>†</sup> to identify future pollution prevention approaches and strategies to use with East Bay dry cleaners. The goal of these informal interviews and charrettes, more specifically, was to solicit the help of dry cleaners, regulatory agencies, local governments

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<sup>†</sup> A charrette is best described as a problem-solving focus group.

and environmental non-profit organizations to determine effective ways to encourage dry cleaners to reduce perchlorethylene (perc) usage, a chlorinated hydrocarbon synthetic solvent, without reducing their profits.<sup>4</sup> The following report presents an overview of both charrettes and incorporates knowledge gained through the numerous informal interviews as discussed above.

### Dry Cleaning

According to a recent news article, dry cleaning is a \$6 billion-a-year industry.<sup>5</sup> Dry cleaning, however, is not dry; it is the process of cleaning fabric without water. Water is not used because it can cause certain fabrics to shrink and numerous dyes to run. Instead the dry cleaner uses an alternative liquid — in most cases, perchlorethylene, or perc.

Dry cleaners typically sort clothes and place them into a machine containing a solvent and special soap. Unusual stains are treated prior to washing. The clothing is washed and then rinsed with pure cleaning fluid — perc. The solvent is then removed by draining and spinning the clothes. From there, the clothes are dried with warm air. The cleaning fluids are collected to be reused, and the clothing is pressed.<sup>6</sup>

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<sup>4</sup> Approximately 80 percent of dry-cleaning plants use perchloroethylene or “perc”. According to US EPA perc is a “probable human carcinogen”. Consequently, various federal and state agencies developed stringent regulations to control its use and disposal. These same agencies are also trying to encourage reduced reliance on perc.

<sup>5</sup> Bob Downing, “New, wet method of ‘dry’ cleaning better for environment, workers.” Knight-Ridder/Tribune News Service, March 5, 1998, p305K6497.

<sup>6</sup> “A Comparative Analysis of Perc Dry Cleaning and an Alternative Wet Cleaning Process”, Authors: Catie Blackler, Richard Denbow, William Levine, Kathy Nemsick and Rugh Polk, Faculty Advisor: Dr. Gregory A. Keoleian, (published by the School of Natural Resources and Environment, University of

“Dry cleaning began in France about the middle of the 19th century, at first in small plants, where it was done by hand.”<sup>7</sup> Petroleum-based solvents were initially used in the cleaning process. While they were effective, they were also highly flammable which caused explosions in a number of plants.

Perchloroethylene, a chlorinated hydrocarbon synthetic solvent, was introduced in the 1950s and was widely adopted because of its low flammability and superior cleaning abilities. About 90% of all dry cleaners now use perc; the remainder use petroleum-based solvents, which have been improved by raising their boiling point.<sup>8</sup>

Dry cleaners are now the single largest market for perc.

### Health Hazards of Perchloroethylene

While there is not a clear consensus as to the exact toxicity of perc, it has been deemed potentially hazardous to human health.

“Perc is one of 10,000-15,000 chemicals in commercial use that are manufactured using chlorine.... A significant fraction of these chemicals pose ecological and human health risks because of their toxicity, persistence in the environment and potential to bioaccumulate in the food chain... Perc’s properties indicate that it is not as persistent and bioaccumulative as other chlorinated compounds, but because of its toxicity, the widespread human exposure to perc, and its high mobility in the environment, it poses significant human and ecological health risks.”<sup>9</sup>

According to US EPA perc is a “probable human carcinogen.” The National Institute of Occupational Safety and Health (NIOSH)

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Michigan--Ann Arbor, April 18, 1995), pp. 8-10; hereafter cited as CAPDCAWCP.

<sup>7</sup> The Columbia Encyclopedia, Edition 5, (Columbia University Press, 1993) p11213.

<sup>8</sup> CAPDCAWCP, p. 5-8.

<sup>9</sup> CAPDCAWCP, p. 1.

recommends treating perc as a human carcinogen, the state of California classifies it as a known carcinogen, and the International Agency for Research on Cancer (IARC) places it in Group 2A (“probably carcinogenic to humans”).<sup>10</sup>

## Regulatory Environment

In response to increased information on the potential health and environmental risks associated with perc, various regulations on its use were adopted.

“In 1991, the National Federation for Independent Business compiled nearly 100 manuals and forms that the federal government requires in order to open a dry cleaning business. The requirements range from clean air regulations governing perchloroethylene emissions to hazardous waste regulations, plus occupational safety regulations, liability standards, labor codes, wage laws and tax rules that affect all small businesses.

“The regulatory burden imposed on dry cleaners increased further in 1993 with issuance of the National Emission Standards for Hazardous Air Pollutants (NESHAP) rule under the Clean Air Act Amendments of 1990. This regulation is designed to reduce emissions of perchloroethylene...”<sup>11</sup>

The federal regulation of perc emissions did not prevent states from adopting their own more stringent rules. The state of California, known for having stricter environmental regulations than the federal government, classified perc as more hazardous than did the federal government

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<sup>10</sup> CAPDCAWCP, p. 41.

<sup>11</sup> Jonathan H. Adler, “Too Many Government Rules Clean Out Small Companies”, Insight on the News, Feb 14, 1994 v10 n7 p31(2). Jonathan H. Adler is a policy analyst at the Washington-based Competitive Enterprise Institute. This article is adapted from his Cato Institute Policy Analysis, “Taken to the Cleaners: A Case Study of the Overregulation of American Small Business.”

(as noted above) and therefore promulgated stricter regulations. These regulations focused on perc air emissions and required local regional Air Quality Management Districts to enforce the California Air Resources Board (CARB) rules and/or adopt their own stricter rules.

Both the Bay Area Air Quality Management (BAAQMD) District and the Southern California Air Quality Management District, concerned about urban air quality, adopted stricter rules than the state. These rules required changes in dry cleaning equipment, operations, record-keeping and operator training intended to reduce perc usage. Many of these requirements were expensive to comply with.

The following are brief descriptions of the rules and regulations Bay Area dry cleaners must follow when using perc.<sup>12</sup>

- Dry cleaning operators must have “closed loop systems.” These systems allow clothing to be washed and dried in the same machine so that no perc is emitted into the air while moving wet clothing between the washer and dryer. In addition, perc used during garment cleaning can be recovered and reused.
- Co-residential cleaners (cleaners sharing a building, walls and/or ceiling with residential occupants) are required to enclose their machines in special vapor barrier rooms and use proper ventilation to dispose of perc gasses.

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<sup>12</sup> “Pollution Prevention in the Garment Care Industry: Assessing the Viability of Professional Wet Cleaning”, Peter Sinsheimer, Senior Research Associate; Jessica Goodheart, Project Manager; Craig Tranby, Research Association; Laura Bechtel, Research Associate; Robert Gottlieb, Principal Investigator (published by the Pollution Prevention Education and Research Center, UCLA/Occidental College, December 11, 1997.), p. 1-4; hereafter cited as PPGCI.

Phone conversation with Todd Wong of the California Air Resources Board, 14 October 1998.  
Phone conversation with Scott Lutz of the Bay Area Air Quality Management District, 15 October 1998.

- Dry cleaners must keep their plants’ perc air emission plant levels to 25 ppm or less (Cal OSHA rule).
- Operators must check for perc leaks weekly using halogen detectors and perform regular maintenance check-ups on their machinery.
- Dry cleaners must follow specific record-keeping requirements, including recording how many pounds of clothing/fabric they clean weekly. Cleaners must also record:
  - quantities of perc purchased and used;
  - weekly perc leak checks; and,
  - operation and maintenance checks.
- Dry cleaning operators must be certified every three years by attending an ARB approved four hour class to review industry regulations (Industry Compliance Classes).
- Dry cleaners must dispose of perc in accordance with hazardous waste disposal regulations.
- The local fire department must inspect and certify dry cleaner’s fire response equipment.
- Dry cleaners must submit detailed information on perc usage, perc recovery and type of equipment to BAAQMD so that an assessment of their emissions levels can be made to determine if they need to upgrade their venting systems.

BAAQMD has 6 inspectors to enforce these regulations for the more than 900 dry cleaners and about 10,000 dry cleaning machines operating within the Bay Area. When a violation is found, the BAAQMD inspector writes up a notice requiring the dry cleaner to correct the violation. The dry cleaner generally pays a fine much like a parking ticket.<sup>13</sup>

According to Scott Lutz of the Bay Area Air Quality Management District, these regulations

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<sup>13</sup> Scott Lutz, 15 October 1998.

have caused perc usage in the Bay Area to drop significantly, about 50 percent .<sup>14</sup>

Previous to these regulations, dry cleaners were licensed through the State Bureau of Fabricare, this board required cleaners to attend a two year trade school and pass licensing exams; different exams were given for spotting, pressing and operating a plant. The Bureau, which also oversaw inspection of dry cleaning plants, was disbanded in the mid-80's by the Dukemajian administration when they eliminated a whole slew of industry boards in an effort to reduce bureaucracy. As a results, it became easier to open a dry cleaning shop and the cost of dry cleaning remained low due to the increased competition.

At one time, the East Bay Municipal Utilities District (EBMUD) charged dry cleaners a permit fee and these funds were used to clean up perc found in waste water. However, acknowledging that most of that residue was probably not due to dry cleaners, EBMUD eliminated the fee and instead introduced a waste minimization fee for all non-residential water services.<sup>15</sup>

Several legislative issues are currently under consideration in the dry cleaning arena. The Federal Trade Commission which oversees garment labeling is currently considering developing a "wet clean" garment label. Congress is considering legislation, entitled the "Barton Bill" which addresses who should be liable for cleaning up sites contaminated with perc where dry cleaners were in compliance with best known practices at the time.

## Alternatives to Dry Cleaning

Ecology Action has identified the following alternatives to dry cleaning.

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<sup>14</sup> Phone conversation with Scott Lutz, October 22, 1998.

<sup>15</sup> Comment by Stan Archacki of the East Bay Municipal Utilities District at charrette, 18 October 1998.

### Wet Cleaning

Wet cleaning, the use of computer-controlled washers and dryers to professionally clean delicate clothes in water, is a less toxic alternative to dry cleaning and studies have found that more than half of all fabrics labeled as requiring dry cleaning can be cleaned using wet cleaning. Additionally, a recent report by UCLA found that wet cleaning is both technically and economically feasible.<sup>16</sup>

### Petroleum-Based Solvents

To use petroleum as a dry cleaning solvent, operators need to make fairly inexpensive modifications to their perc dry cleaning equipment. Unlike motor vehicles, dry cleaners using petroleum solvents for cleaning do not emit carbon dioxide or other harmful emissions. However, petroleum solvents are flammable and safety concerns exist around their use. According to a trade report, advances in machines and increasing the solvent's flashpoint have improved safety.

### CO<sub>2</sub>

Liquid carbon dioxide (CO<sub>2</sub>) can be used at high pressures to clean clothes. It is safe, cheap and abundant. No special disposal procedures are necessary. A major disadvantage is the high cost of equipment and the fact that a detergent to use in conjunction with the solvent has not been developed. CO<sub>2</sub> is not currently commercially viable.

### Rynex

Rynex is a solvent that, according to the manufacturer, is biodegradable, non-carcinogenic, non-flammable, recyclable and can be used in perc machines with minor modifications. It has only recently been introduced commercially and the Bay Area Air Quality Management District is studying its claims.

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<sup>16</sup> PPGCI.

### Others

Other alternatives to dry cleaning are being studied, such as using ultrasound. However, none of these are even close to being commercialized.

## The San Francisco East Bay Dry Cleaning Industry

### Pollution Prevention

Since the 1980s, environmental policy has focused on minimizing the impact of pollutants through pollution prevention (P2), also referred to as “source reduction”.

Pollution prevention is defined as reducing or eliminating the creation of pollutants through conservation and “...increased efficiency in the use of raw materials, energy, water or other resources”. It refers to any practice that “...reduces the amount of any hazardous substance, pollutant or contaminant entering the environment prior to recycling, treatment or disposal”.

Methods for achieving pollution prevention include: “equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, substitution of raw materials and improvements in housekeeping maintenance, training or inventory control”.<sup>17</sup>

Strategies to encourage businesses in P2 may include “...regulatory tools, voluntary action, or economic incentives or disincentives.”<sup>18</sup> As described above, since the early 1990’s, government agencies have used regulatory tools to encourage dry cleaners to reduce their per emissions. More recent efforts, such as feasibility studies of alternative fabricare

<sup>17</sup> “Pollution Prevention in the Federal Government: A Guide for Developing Pollution Prevention Strategies for Executive Order 12856”, US EPA, published 199?, pp. 4-5.

<sup>18</sup> PPGCI, p. 1-2

technologies funded in part by EPA, have focused on voluntary action. The East Bay Dry Cleaning Pollution Prevention Charrette and Berkeley Wet Cleaning Charrette were held to identify pollution prevention approaches and strategies to use with East Bay dry cleaners.

### Dry Cleaning In The East Bay Area

The majority of cleaners in the San Francisco East Bay are small, independently operated or franchise neighborhood cleaners. Most offer laundry service as well as dry cleaning. According to Ecology Action, about sixty percent of the dry cleaners in the Bay Area are run by Korean immigrants.

Although dry cleaning is not characterized as a highly profitable business, its relatively low start-up costs and labor intensive requirements make it an attractive option for those with limited capital and a willingness to substitute labor for capital (for example, by developing a family-run business). “Largely due to these characteristics, during the 1980s large numbers of first generation Korean immigrants entered the dry cleaning business. By the late 1990s, Korean cleaners constituted a major segment of the industry...”<sup>19</sup>

There are quite a number of trade associations within the industry, including the Northern California Korean Dry Cleaners Association, the Southern California Korean Dry Cleaners Association, the Korean Dry Cleaning Association (KDA), the Chinese Dry Cleaning Association (CDCA), the California Cleaners Association (CCA), the International Fabricare Institute (IFI), the Neighborhood Cleaning Association (NCA), the Peninsula Dry Cleaners Association, the Greater Los Angeles Dry Cleaners Association, and the International and National Cleaners Associations.

Their jurisdictions vary from local, regional, and ethnic to national and international. “...there is

<sup>19</sup> PPGCI, pp. 1-3 to 1-4.

no one national umbrella association. This lack of unification in the industry can make it difficult to disseminate information.”<sup>20</sup> Most cleaners rely on their industry associations and suppliers for information on industry-wide developments and regulatory issues.

## Berkeley & Oakland Charrette Methodology

In order to identify the most effective ways to reduce perc usage by dry cleaners without reducing their profits, EFC9 conducted numerous informal interviews with regional, county and local government agencies including economic development agencies, small business organizations and representatives, community organizations, dry cleaners, environmental non-profit organizations, and industry insiders concerning the dry cleaning industry. In addition, EFC9 organized and held two Dry Cleaning Charrettes.

A charrette is a problem-solving focus group; in other words, a meeting to solve a problem within a specified time limit. Currently, the term is gaining popularity to describe a gathering of various groups of people in a community to resolve common problems with the assistance of outside experts.

It can be used to achieve different results including: the discovery of problems and issues of concern that need to be addressed, public feedback on a current or proposed regulation; intensive and individualized education and training; and brainstorming or creative thinking to solve problems.

Aside from offering creative solutions, charrettes serve to initiate dialogue and build relationships, offer intensive and individualized education and training, provide momentum for projects and build consensus among participants.

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<sup>20</sup> CAPDCAWCP, p. 5.

Charrette participants include: clients (those who have the "problems"), experts (those who have helped solve similar problems in the past), a moderator/facilitator and a recorder (who recorded the proceedings on large “post-its” stuck all over the walls, called “wall notes, during the charrette). The objective is to keep attendance numbers small (not to exceed 20) so that an effective dialogue can take place.

In our case, the charrette participants included dry cleaners, and representatives from a number of organizations and agencies including dry cleaning trade associations, government agencies that regulate dry cleaners and from government agencies and non-profit organizations that promote pollution prevention and environmental business development. The objective of the charrettes was twofold: 1) to identify barriers to reducing perc usage (mostly focusing on barriers to adopting alternative technologies, equipment, and processes) and 2) to determine how to overcome those barriers.

Our first task was to develop a list of qualified invitees. The Bay Area Air Quality Management District provided us with a list of all dry cleaners operating plants in Alameda County, including their addresses and phone numbers. To identify appropriate government agency representatives, we attended meetings of the Bay Area Hazardous Waste Reduction Committee and the City of Oakland Sustainable Community Development Initiative and sat in on the working group committee dealing with the BAAQMD regulation of dry cleaners. In addition, we solicited contacts from US EPA Region IX staff and Ecology Action.

EFC9 mailed an invitation to every dry cleaner in Oakland and Berkeley as well as appropriate government agency representatives and followed up with personal phone calls (see appendix for invitations and invitation list). From these calls, we determined that many dry cleaning operators are not comfortable holding extensive conversations in English. Therefore we procured the assistance of staff from the Korean Community Center of the East Bay, who could perform casual translation services into

Korean. We also spoke with several individuals who were more comfortable in Chinese. However, we were unable to locate affordable Chinese translation services.

In spite of our efforts, only a handful of dry cleaners attended our charrettes. Dry cleaners have little free time. They generally work six days a week (sometimes seven) and for as many as 13 or 14 hours a day. The first charrette was held midday on a Wednesday. Only two dry cleaners and one dry cleaning association representative were able to attend, in addition to seven representatives from government agencies and 8 representatives from non-profit organizations. In order to increase attendance by dry cleaning operators, we held the second charrette on a Sunday afternoon, after church, when most dry cleaners are closed. As anticipated, more dry cleaners came to the October 18, 1998 charrette — three dry cleaning operators and one intended operator; but fewer representatives from government agencies (4) and non-profit organizations (7) showed up.

The following two sections provide an overview of each charrette, including recommendations and next steps. The full text of the charrette white papers are located in the appendices.

# BERKELEY DRY CLEANING CHARRETTE

May 19, 1998

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## Overview

On May 19, 1998, the Environmental Finance Center for EPA Region IX (EFC9) held its first dry cleaning charrette which addressed the issue of how to introduce wet cleaning to the City of Berkeley. The focus questions were:

- How can at least one member of the dry cleaning community in Berkeley be convinced to offer wet cleaning services?
- How can a wet cleaning operator be induced to offer his/her services in Berkeley?

Eighteen individuals attended. They included two Berkeley-based dry cleaners, a former wet cleaner, a representative of the California Cleaners Association, and representatives from Ecology Action (a Santa Cruz-based non-profit organization focusing on waste reduction), East Bay Municipal Utilities District, US EPA Region IX, California EPA, Alameda County Green Business Program, City of Berkeley, City of Oakland, Progressive Asset Management, Inc. (a socially-responsible investment fund), and EFC9.

The charrette began with a welcome and introductions. It then moved into Phase I-Discussion of Issues. During the lunch break, the charrette staff distilled the results of the Phase I discussion and wrote them up. After lunch the group reviewed that synopsis, made changes and then moved into Phase II-Discussion of Recommendations. The charrette concluded after Phase III-Next Steps.

## Phase I - The Issues

The group divided the issues identified in Phase I into the following four categories:

- Technical feasibility;
- Costs and financial feasibility;
- Regulations regarding “transition”; and,
- Marketing and customer demand.

After the charrette, EFC9 and Ecology Action staff reviewed the charrette wall notes and divided the issues raised into these four categories, as detailed below.

### ■ Technical Feasibility

The first set of issues dealt with whether wet cleaning works as well as dry cleaning both in terms of the quality of cleaning and its impact on the life of the garment. There were concerns about on what garments and fabrics wet cleaning is effective and ineffective, especially relative to dry cleaning.

Participants were concerned about the capacity of wet cleaning machines, especially as compared to dry cleaning machines. According to Ecology Action, perc machines can handle a greater volume of clothing per hour than current wet cleaning equipment.

Dry cleaners are concerned about how to deal with garment and fabric labeling as fabric cleaners are liable for replacing a damaged garment if they do not follow the labeled instructions.

Participants commented on the lack of examples of successful wet cleaning businesses and places to learn about the equipment and how to use it most effectively. There is a shortage of reliable sources of information on wet cleaning which dry cleaners can understand and trust. Most of the information is developed by regulatory agencies and/or environmental organizations, neither of which are considered trustworthy sources.

In addition, dry cleaners raised the issue that there is a shortage of well-trained pressers. Good pressing is more important in wet cleaning than in dry cleaning since the technology requires extra pressing time and expertise.

### ■ **Costs and Financial Feasibility**

Major fabricare cost items include:

- Equipment
- Solvents
- Labor
- Regulatory compliance
- Energy
- Water input & waste water output
- Solid and hazardous waste disposal

Dry cleaners are concerned about whether they can make money wet cleaning, after buying the necessary equipment and training the labor. Finding and paying for space for wet cleaning equipment is also a financial concern.

Sources of financing for the purchase of wet cleaning equipment are limited or hard to get, according to charrette participants.

### ■ **Regulations Regarding “Transition”**

Agencies regulating, licensing and permitting the dry cleaning industry in Berkeley include:

- US EPA
- California EPA
- California Department of Health
- Bay Area Air Quality Management District (air)
- East Bay Municipal Utility District (water)
- City of Berkeley (land use, toxic disposal & business license)

The charrette participants commented that agencies which regulate the dry cleaning industry (due to the use of perc) have not provided incentives to incrementally transition to alternative cleaning methods and focus on regulation, not on alternatives. They perceive

the regulatory incentives as requiring “all or nothing” by the compliance date.

There is fear of future regulation if dry cleaners switch to alternative cleaning methods and technology, such as water discharge regulations.

Like many industries, dry cleaning has been de-regulated and some of the trade associations are concerned that this has reduced the level of professionalism and compliance in the industry.

The dry cleaning industry is quite fragmented, so there is little communication among the various associations.

Participants commented that regulators and government agencies don’t understand dry cleaners’ cultures, procedures and practices and that dry cleaners don’t trust regulators and government employees. The dry cleaners said that regulatory agencies perceive dry cleaning as dangerous. All dry cleaners do not hold the same views regarding toxicity and public health risk. There are also language barriers; 60 percent of dry cleaners in the Bay Area are Korean.

Landlords’ concern about liability issues associated with perc and petroleum-based solvents makes it hard to find space to operate a dry cleaning business.

### ■ **Marketing and Customer Demand**

There is little if any demand for wet cleaning, since most consumers don’t know what it is. If they hear about it, they think it is laundry and that they can do it themselves at home. Dry cleaners believe that potential customers distrust the wet cleaning process.

Some dry cleaning customers only want their garments dry cleaned, even if they can be wet cleaned more effectively. In other words, customers do not understand the dry cleaning and wet cleaning processes and how to appropriately clean their garments. According

to the dry cleaners, it's hard to educate consumers.

There is concern that advertising for wet cleaning will have a negative tone because it may focus on the potential health effects of dry cleaning. This could create antagonisms in the fabricare industry.

## Phase II - Recommendations

### ■ Technical Feasibility

- Trusted sources should be available to give dry cleaners concise, easy to understand comparative information on alternative fabricare cleaning equipment, methods, solvents, techniques, etc. in their own languages.
- Hands-on training and exposure to the actual equipment should be available. One possibility is to set up a mobile truck wet cleaning demonstration unit that could visit cleaners at their work sites.
- Businesses should receive information on P2 alternatives as part of the business tax license process.
- Additional wet cleaning pressers should be trained to address the shortage of well-trained pressers.
- Information on alternative fabricare technologies and solvents should be provided at fabricare trade shows.

### ■ Costs and Financial Feasibility

- Short, easy to understand, comparative cost information on fabricare alternatives should be assembled and disseminated through trusted sources.
- Wet cleaning equipment grants and low-interest loans should be available.

- Successful wet cleaning businesses should be publicized.

### ■ Regulations Regarding "Transition"

- Dry cleaning associations should lobby regulatory agencies to create incentives for incremental transition to reduced per cent usage.
- Garment labeling, garment manufacturing and fabric manufacturing should be altered to make wet cleaning more feasible and well-known.
- Landlords should be involved in the transition process. The support and assistance they may require and that they can give should be determined.

### ■ Marketing and Customer Demand

- Market research that identifies and characterizes actual wet cleaning customers who patronize wet cleaning shops nationally should be conducted.
- Targeted marketing campaigns should be developed.
- Wet cleaning services should be publicized as part of the City of Berkeley's "green valley," program, including: the green business directory, green business maps and green business trade shows.
- University students and faculty can be used to provide free marketing assistance.
- Publicity for wet cleaners can be provided in EBMUD billing insets and in the "Business to Business" newsletter.
- Co-locating wet cleaners with other green businesses should be considered.

## Phase III - Next Steps

The charrette concluded with all the participants sharing resources and identifying next steps that the participants will take. The next steps are:

### ■ Ecology Action

- Ecology Action will send the Executive Summary of the UCLA report entitled “Pollution Prevention in the Garment Care Industry: Assessing the Viability of Professional Wet Cleaning” to all charrette attendees.
- Ecology Action will search for funding programs to assist dry cleaners in transition.

### ■ USEPA

- Anna Hackenbracht of the US EPA will provide information on the status of meetings between the US EPA, the Federal Trade Commission and other federal agencies about garment labeling, fabric design, etc. to all charrette attendees.
- Angela Barranco of the EPA Air Quality Division will inform charrette participants about future wet cleaning training opportunities and will search for model wet cleaning facilities in California which could offer additional hands-on training venues.
- Ms. Barranco will study the possibility of negotiating regulatory relief concessions with California Air Resources Board for “transitioners”.

### ■ City of Berkeley

- Kate Squire with the City of Berkeley will assess the need for pressers and the availability of funding for training them.
- Ms. Squire will contact professors at the University of California at Berkeley

Sustainable Business Center to determine if any of them would be available to conduct a market study for wet cleaning.

- Ms. Squire and/or Susan Blachman with EFC9 will talk with the participating dry cleaners as well as the other cleaners who expressed an interest in wet cleaning to assess their progress and determine what support, if any, they need.

### ■ EFC9

- EFC9 will share this white paper with various individuals and organizations who expressed an interest in the charrette, but who could not attend.
- EFC9 will inform all charrette participants about the next wet cleaning charrette.

### ■ Cities of Oakland, Berkeley, Alameda County, and USEPA

- Cities of Oakland, and Berkeley, Alameda County, and EPA, will search for funding for a mobile truck alternative fabricare demonstration project (about \$150,000).

# OAKLAND DRY CLEANING CHARRETTE

October 18, 1998

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## Overview

In order to increase attendance by dry cleaning operators, this second charrette was held on a Sunday afternoon, after church, when most dry cleaners are closed. As anticipated, more dry cleaners came to the October 18, 1998 charrette — three dry cleaning operators and one intended operator; but fewer representatives from government agencies (4) and non-profit organizations (7) showed up.

Both charrettes were similarly structured but each had a different focus. The Berkeley Charrette addressed the feasibility of increasing the amount of wet cleaning done at dry cleaning plants, while the Oakland Charrette examined the feasibility of adopting other fabricare technologies as well (i.e. petroleum-based solvents, CO<sub>2</sub> and Rynex). Like the Berkeley charrette, Oakland began with a short welcome and then moved into the Phase I – Discussion of Issues. Following a short break, the charrette then moved into Phase II – Discussion of Recommendations, and concluded with Phase III – Next Steps.

## Phase I - Discussion of Issues

The results of Phase I – Discussion of Issues in both charrettes were similar (except that the Oakland Charrette added one more issue category – health impacts). Barriers to adopting alternative technologies identified at the Oakland Charrette fell into the following categories:

- health impacts

- technical feasibility
- regulatory concerns
- financial feasibility
- market uncertainty.

The issues identified in this charrette were similar to those mentioned in the prior one. However, the Berkeley charrette focused only on wet cleaning and Oakland looked at other fabricare technologies. In addition, the Oakland charrette added one more issue category — health impacts.

### ■ Health Impacts

The cleaners emphasized that the cancer causing effects of using perc must be proven before they would consider changing solvents. At present, most believe it causes cancer in rats, but not in humans. They feel that all the regulations focusing on perc use are based on “hearsay and innuendoes” and that there is no need for alternatives, especially since all perc dry cleaners must now use closed-loop machines.

### ■ Technology Feasibility

The dry cleaners emphasized that “nothing can beat perc.” Currently, most cleaners wet clean garments, if that is what is required. However, they emphasized that water cannot clean all fabrics and garments and it is not effective as a 100% replacement for perc dry cleaning.

#### Wet Cleaning

In addition, most cleaners will not wet clean garments labeled “dry clean only” without the garment owners consent, since they are liable for any resulting damage. In addition, dry cleaners also emphasized that finishing is more time consuming in wet cleaning and requires greater expertise.

#### Petroleum-Based Solvents

According to the dry cleaners, petroleum, the former dry cleaning solvent of choice,

is not as effective as perc. However, it is a technically feasible alternative to perc.

### **CO<sub>2</sub>**

There are a number of technical reasons why CO<sub>2</sub> is not a feasible alternative.

- It is not currently commercially available.
- A detergent has not yet been developed to use with CO<sub>2</sub>.
- Because the CO<sub>2</sub> must be kept under high pressure, it is unlikely that cleaners could repair their own machines if they broke down.
- Dry cleaners feel there are too many unknowns regarding this technology including: cost of solvents and detergents, life of machine, maintenance costs and regulatory environment.

### **Rynex**

Rynex is still untested in a commercial setting and there was concern expressed about its effectiveness, the fact that it grows bacteria and it may have pollution problems.

## ■ **Regulatory Concerns**

While the regulatory burden associated with using perc is tremendous, most cleaners have learned how to live with it, and they are reluctant to face an entirely new set of regulations.

In general, dry cleaners fear an uncertain regulatory future if they switch to alternative cleaning methods and technologies. More specifically, they are concerned that if they choose to switch to new technologies and treatments, future regulations governing these technologies will change as the regulatory agencies learn more about the associated hazards of these alternatives (as they did with

perc). This could increase operating costs tremendously (as in the case of perc).

## ■ **Financial Feasibility**

The major fabricare cost items include:

- equipment
- solvents
- labor
- regulatory compliance
- energy
- water input & waste water output, and
- solid and hazardous waste disposal.

### **Wet Cleaning**

As at the Berkeley charrette, the cleaners were leery about the financial feasibility of increasing the percentage of clothing they wet clean. The Oakland cleaners emphasized that wet cleaning requires more expensive finishing (additional equipment and more labor) and that finding qualified affordable individuals to perform the finishing work is practically impossible.

In addition, a lack of space or the cost of additional space to house wet and dry cleaning equipment would increase the cost of on-site wet cleaning.

Finally, the dry cleaners in attendance do not believe that most customers would be willing to pay the cost and therefore, it would not be profitable to increase the amount of wet cleaning.

### **Petroleum-based Solvents**

Petroleum-based solvents are financially feasible to use. They simply require fairly inexpensive modifications to perc machinery. However, there is uncertainty regarding future regulatory expenses.

### **CO<sub>2</sub> and Rynex**

As indicated above, the cost for CO<sub>2</sub> equipment, solvents and detergents, as well as equipment maintenance has not yet been

determined. There are similar concerns with Rynex.

### ■ **Market Uncertainty**

Comments from dry cleaners about the market for fabricare alternatives resembled those made at the Berkeley charrette.

Dry cleaners believe their customers are reluctant to change cleaning processes, especially if garments are labeled “dry clean only”. Indeed, there is little, if any customer demand for alternative fabricare, according to the dry cleaners in attendance.

In addition, as indicated above, cleaners do not believe that most customers would be willing to pay the cost of wet cleaning garments needing substantial finishing work.

## **Phase II - Recommendations and Solutions**

Because fewer representatives from government agencies attended the Oakland charrette, fewer recommendations relating to what government agencies should do were developed. The following recommendations were proposed in response to the issues identified above.

### ■ **Health Impacts**

- Cleaners should be provided with clear information on human health effects of perc.

### ■ **Technology Feasibility**

- Alternative technologies need to be demonstrated in a commercial setting to prove to dry cleaners that they are viable.
- A non-polluting effective cleaning solvent needs to be developed.

### ■ **Regulatory Concerns**

- Regulatory agencies should commit to a predictable environment and/or give cleaners substantial notice prior to making changes. In addition, dry cleaners should be involved in the regulatory amendment process.
- Local, state and federal agencies should work together to reduce regulatory redundancy.
- The “best available technology” rule should be eliminated. (This rule requires dry cleaners to acquire the best available technology at the time which is constantly changing).
- Regulators should work with garment, thread and fabric manufacturers to develop “wet clean only” garments.
- Regulators should work with the US Federal Trade Commission to improve garment labeling and enforce proper labeling of imported garments.

### ■ **Financial Feasibility**

- Training should be provided to help dry cleaners maximize their wet cleaning.
- Reliable sources for trained wet cleaning garment finishers need to be established.

### ■ **Market Uncertainty**

- To increase demand for professional wet cleaning, consumers needs to be educated. In addition the public should be informed about alternative cleaning methods and how to shop for garments that can be wet cleaned.

## Phase III - Next Steps

The charrette concluded with all the participants sharing resources and identifying next steps that they will take. These were:

### ■ Cleaners

- Cleaners should work to pass the Barton Bill (addresses liability for dry cleaning sites contaminated with perc).
- Cleaners should organize to increase their voice in the political and regulatory processes. They should work for regulatory relief and recognition of success.

### ■ East Bay Municipal Utilities District

- EBMUD should keep abreast of the dry cleaning industry and help consumers understand which cleaners are in compliance with regulations and what that means.

### ■ San Ramon Services District

The SRSD will visit dry cleaners in the district in about once a year to determine what they need to learn.

### ■ Environmental Finance Center, Region IX

- EFC9 will learn about future regulations pertaining to dry cleaners and alternative technologies.
- EFC9 will share the results of this charrette with US EPA management, emphasizing that finance is one of many barriers to reduced perc use.
- EFC9 will investigate ways to educate consumers.

### ■ Ecology Action

- Ecology Action will provide information on the status of alternative technologies, processes, equipment, costs, etc.
- Ecology Action will investigate ways to include dry cleaners' concerns in new regulation development and promote self-regulation.
- Ecology Action will also work with the Korean Community Center of the East Bay (KCCEB) to set up a peer leadership program, compliance training and wet cleaning marketing assistance with Korean dry cleaners.

### ■ Korean Community Center of the East Bay

- The KCCEB will focus on voluntary compliance and help improve communication among cleaners.

### ■ City of Oakland

- The City of Oakland will keep in mind the special concerns of dry cleaners stressing attraction/retention assistance for dry cleaning employees.
- Oakland will also look at job training opportunities in the fabricare industry.

## CONCLUSIONS AND RECOMMENDATIONS

### Where Do We Go From Here?

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The Environmental Finance Center, Region IX initiated this study under the assumption that finance would be the primary barrier to implementing pollution prevention technology in the dry cleaning industry. However, it was quickly determined that a host of other barriers existed which precluded the need for financing for new technology. Some of those barriers included:

- The uncertain science involving the health hazards of perchlorethylene;
- The technical infeasibility of new technologies;
- The regulatory uncertainty for new technologies;
- The lack of a viable market for cleaning alternatives; and,
- The unknown monetary costs of alternative technologies.

In addition, it became patently obvious that the dry cleaning industry was highly distrustful of and resentful towards regulators, and simply did not believe that perc was hazardous to themselves or the environment. Indeed, the statement "I've worked in the business all my life and I've never had any health problems from perc and neither have my employees," was often heard from the dry cleaners.

As far as dry cleaners are concerned the onus is on the regulators, and particularly, the EPA to prove beyond a doubt that perc is a carcinogen. And until that happens, few dry cleaners will

willingly convert to alternative technologies unless the *market* dictates a change. As a result, regulators face an uphill battle in their march towards fazing out perchlorethylene use within the dry cleaning community.

However, while it will be difficult to persuade dry cleaners to phase out perc, there are a number of recommendations, identified at the Oakland and Berkeley charrettes, that regulators, local governments and environmental organizations may wish to pursue. Unfortunately, none of these recommendations are "quick fixes", and considerable work will be needed to convince both dry cleaners and, most importantly, the public at large that there are valid alternatives to dry cleaning with perchlorethylene. These recommendations conclude this report and are reviewed below.

#### ■ Health Impacts

Regulators must clarify the human health impacts of perc. In addition, a simplified report summarizing the human health hazards of perc, including the science behind the conclusions should be prepared and distributed to trusted industry channels who will then make presentations at dry cleaning association meetings and share it in their publications. If dry cleaners can be convinced that using perc is hazardous for themselves and their employees, they are more likely to be open to adopting alternative technologies.

#### ■ Technical Feasibility

Proof that alternative technologies work in a commercial setting must be demonstrated. Concise, easy to understand comparative information on alternative fabricare cleaning equipment, methods, solvents, techniques, etc. should be prepared in partnership with industry representatives who can then present the information to dry cleaners in their own

languages.<sup>21</sup> Information on P2 alternatives should be provided as part of the business tax license process.

#### **Wet Cleaning**

Convenient training opportunities in wet cleaning should be available. There is an acute shortage of well-trained wet cleaning pressers.

#### **Petroleum-Based Solvents**

Information on the full range of petroleum-based products should be made available through non-partisan industry associations.

#### **CO<sub>2</sub>, Rynex and Others**

New developments that affect the feasibility of these alternatives should be monitored and shared with industry associations. Fabricare plants that use these alternatives should be publicized in industry association trade papers and journals and in the mainstream media.

### ■ **Financial Feasibility**

As in the case of technical feasibility, the financial feasibility of commercial fabricare establishments using alternative technologies should be analyzed. Short, easy to understand, comparative cost information on fabricare alternatives should be assembled and disseminated through trusted sources. Local governments would do well to recognize that dry cleaners create jobs for low-income urban residents.

#### **Wet Cleaning**

Training to help dry cleaners maximize their wet cleaning should also be available.

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<sup>21</sup> There are numerous immigrant communities involved in the Dry Cleaning Industry in the United States, and many do not speak and/or read English fluently. In the San Francisco Bay Area, the majority of dry cleaners are of Korean descent.

### ■ **Regulatory Concerns**

Regulatory uncertainty for dry cleaning alternatives should be reduced. Dry cleaners must be assured that if they invest in a cleaner alternative technology today, they will not be subject to major regulatory changes before the equipment is fully amortized.

### ■ **Market Uncertainty**

The public is largely unaware of fabricare alternatives and should be educated without damaging the current industry. In addition, garment manufacturers do not normally include a “safe for wet cleaning” designation on their care labels. Regulators should work with the fabric and garment industries to help make fabricare alternatives more feasible and attractive.

#### **Wet Cleaning**

There is an urgent need for consumer education to increase demand for wet cleaning. Market research should be conducted that identifies and characterizes actual wet cleaning customers who patronize wet cleaning shops nationally. Targeted marketing campaigns should be developed in regions that could potentially support wet cleaning operations.

# APPENDICES





# APPENDIX A

## Oakland Dry Cleaning Pollution Prevention Charrette

### White Paper

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#### Introduction

On Sunday October 18, 1998, the Environmental Finance Center for EPA Region IX (EFC9) held its third charrette which addressed the issue of how to encourage dry cleaners to adopt non-perc dry cleaning technologies. (The first one addressed environmental technology transfer.) The focus questions were:

- What help do dry cleaners need to reduce perc usage without reducing their profits?
- How can the dry cleaning community in Oakland and/or Berkeley be encouraged to offer wet cleaning, Rynex and/or CO2 cleaning services?
- How can a wet cleaning, Rynex and/or CO2 operator be persuaded to offer his/her services in Oakland and/or Berkeley?

Fifteen individuals came to the charrette. They included three Oakland-based dry cleaners, a potential Oakland dry cleaner, and representatives from Ecology Action (a Santa Cruz-based non-profit organization focusing on waste reduction), East Bay Municipal Utilities District (EBMUD), US Environmental Protection Agency, Region IX, the City of Oakland, Dublin/San Ramon Services District, the Korean Community Center of the East Bay (KCCEB), and the Environmental Finance Center, Region IX (EFC9).

The following is an overview of the charrette discussion. The attendee list and the invitation materials, can be found in Appendices C1-C4 and D, respectively.

The charrette began with a short welcome; participants had engaged in informal introductions before the formal meeting began. It then moved into Phase I-Discussion of Issues. The group took a short break and then moved into Phase II-Discussion of Recommendations. The charrette concluded after Phase III-Next Steps.

## Issues Identified in the Charrette

The issues identified in this charrette were similar to those mentioned in the prior one held in Berkeley, CA on May 19, 1998. However, while the first dry cleaning P2 charrette focused primarily on wet cleaning, the second charrette looked at other fabricare technologies. In addition, the Oakland charrette added one more issue category — health impacts.

Barriers to adopting alternative technologies fell into the following categories:

- Health impacts
- Technical feasibility
- Regulatory concerns
- Financial feasibility, and
- Market uncertainty.

After the charrette, EFC9 and Ecology Action staff reviewed the charrette transcripts and divided the issues raised into these categories, as detailed below.

### ■ Health Impacts

The cleaners emphasized that the cancer causing effects of using perc must be proven before they would consider changing solvents. At present, most believe it causes cancer in rats, but not in humans. They feel that all the regulations focusing on perc use are based on “hearsay and innuendoes” and that there is no need for alternatives, especially since all perc dry cleaners must now use closed-loop machines.

### ■ Technology Feasibility

The dry cleaners emphasized that “nothing can beat perc.” Currently, most cleaners wet clean garments, if that is what is required. However, they emphasized that water cannot clean all fabrics and garments and it is not effective as a 100% replacement for perc dry cleaning.

#### **Wet Cleaning**

Most cleaners will not wet clean garments labeled “dry clean only” without the garment owners consent, since they are liable for any resulting damage. In addition, dry cleaners also emphasized that finishing is more time consuming in wet cleaning and requires greater expertise.

In addition, dry cleaners feel that wet cleaning will never be a 100 percent replacement for perc.

#### **Petroleum-Based Solvents**

According to the dry cleaners, petroleum, the former dry cleaning solvent of choice, is not as effective as perc. However, it is a technically feasible alternative to perc.

#### **CO<sub>2</sub>**

There are a number of technical reasons why CO<sub>2</sub> is not a feasible alternative.

- It is not currently commercially available.
- A detergent has not yet been developed to use with CO<sub>2</sub>.

- Because the CO<sub>2</sub> must be kept under high pressure, it is unlikely that cleaners could repair their own machines if they broke down.
- Dry cleaners feel there are too many unknowns regarding this technology including: cost of solvents and detergents, life of machine, maintenance costs and regulatory environment.

### **Rynex**

Rynex is still untested in a commercial setting and there was concern expressed about its effectiveness, the fact that it grows bacteria and it may have pollution problems.

## ■ **Regulatory Concerns**

Agencies regulating, licensing and permitting the dry cleaning industry in Oakland include (but are not limited to):

- US EPA
- California EPA
- CalOSHA (labor conditions)
- California Department of Weights and Measures
- California Department of Commerce, Office of Small Business
- California Air Resources Board
- Bay Area Air Quality Management District
- County Department of Health
- East Bay Municipal Utility District
- Oakland Fire Department
- City of Oakland

While the regulatory burden associated with using perc is tremendous, most cleaners have learned how to live with it, and they are reluctant to face an entirely new set of regulations.

In general, dry cleaners fear an uncertain regulatory future if they switch to alternative cleaning methods and technologies. More specifically, they are concerned that if they choose to switch to new technologies and treatments, future regulations governing these technologies will change as the regulatory agencies learn more about the associated hazards of these alternatives (as they did with perc). This could increase operating costs tremendously (as in the case of perc).

Like the Berkeley charrette, in Oakland there was some discussion about the fact that the State of California originally licensed dry cleaners. One cleaner expressed concern that the elimination of this licensing has reduced the level of professionalism and regulatory compliance in the industry. It has also made it easier to become a dry cleaner and probably held down the price of dry cleaning.

Because the dry cleaning industry is quite fragmented — there are numerous trade associations including the Korean Dry Cleaning Association (KDA), the Chinese Dry Cleaning Association (CDCA), the California Cleaners Association (CCA), the International Fabricare Institute (IFI), the Neighborhood Cleaning Association (NCA), and the International and National Cleaners Associations — dry cleaners do not have very effective or strong lobbying power and therefore feel they have little voice in the political and regulatory processes.

According to one cleaner, dry cleaners in Oakland are not very involved in these associations; they are weak due to a lack of member participation (no time or money). In addition, dry cleaners have no time to attend meetings or to lobby.

## ■ Financial Feasibility

The major fabricare cost items include:

- equipment
- solvents
- labor
- regulatory compliance
- energy
- water input & waste water output, and
- solid and hazardous waste disposal.

### **Wet Cleaning**

As at the Berkeley charrette, the cleaners were leery about the financial feasibility of increasing the percentage of clothing they wet clean. The Oakland cleaners emphasized that wet cleaning requires more expensive finishing (additional equipment and more labor) and that finding qualified affordable individuals to perform the finishing work is practically impossible.

In addition, a lack of space or the cost of additional space to house wet and dry cleaning equipment would increase the cost of on-site wet cleaning.

Finally, the dry cleaners in attendance do not believe that most customers would be willing to pay the cost and therefore, it would not be profitable to increase the amount of wet cleaning.

### **Petroleum-based Solvents**

Petroleum-based solvents are financially feasible to use. They simply require fairly inexpensive modifications to perc machinery. However, there is uncertainty regarding future regulatory expenses.

### **CO<sub>2</sub> and Rynex**

As indicated above, the cost for CO<sub>2</sub> equipment, solvents and detergents, as well as equipment maintenance has not yet been determined. There are similar concerns with Rynex.

## ■ Market Uncertainty

Comments from dry cleaners about the market for fabricare alternatives resembled those made at the Berkeley charrette.

Dry cleaners believe their customers are reluctant to change cleaning processes, especially if garments are labeled “dry clean only”. Indeed, there is little, if any customer demand for alternative fabricare, according to the dry cleaners in attendance. This may be due to a lack of information and/or laziness. For example, at both charrettes, cleaners gave examples of customers who want their garments dry cleaned, even if they can be laundered more effectively at home.

In addition, as indicated above, cleaners do not believe that most customers would be willing to pay the cost of wet cleaning garments needing substantial finishing work.

There is little, if any demand for alternative fabricare, according to the dry cleaners in attendance. However, EFC9 learned of an operator using a petroleum-based solvent which advertises as an “environmental dry cleaner” and is located next to one of Oakland’s oldest natural food stores. This has been an effective marketing strategy.

## **PHASE II - Developing Recommendations**

Because fewer representatives from government agencies attended the Oakland charrette, fewer recommendations relating to what government agencies could do were developed. The following recommendations were proposed in response to the issues identified above.

### **■ Health Impacts**

- Provide cleaners with clear information on human health effects of perc.

### **■ Technology Feasibility**

- Demonstrate that alternative technologies work in a commercial setting.
- Find a non-polluting effective cleaning solvent.

### **■ Regulatory Concerns**

- Have regulatory agencies commit to an unchanging environment or give cleaners substantial notice prior to making changes, and/or involve dry cleaners in the regulatory amendment process.
- Get local, state and federal agencies to work together to reduce regulatory redundancy.
- Eliminate the “best available technology” rule; this rule requires dry cleaners to acquire the best available technology at the time (which is constantly changing).
- Work with garment, thread and fabric manufacturers to develop “wet clean only” garments.
- Work with the US Federal Trade Commission to improve garment labeling and enforce proper labeling of imported garments.
- Increase dry cleaning professionalism by re-opening the Laney Community College dry cleaning trade school.

### ■ **Financial Feasibility**

- Provide training to help dry cleaners maximize their wet cleaning.
- Help identify good sources of garment finishers who may be trained for wet cleaning.
- Recognize that dry cleaners create jobs for low-income urban residents; provide health care benefits for these employees via city programs.

### ■ **Market Uncertainty**

- Provide consumer education to increase demand for wet cleaning.
- Teach the public about cleaning methods and how to shop for garments (cheap garments might require expensive maintenance, etc.).
- Encourage the County of Alameda to target the dry cleaning industry for their green business program.
- Get “green” dry cleaners in Oakland listed on the City of Oakland’s green map.

## **Phase III- Next Steps**

The charrette facilitator gave everyone a chance to share their ideas for next steps.

### ■ **Cleaners**

- Work towards passing the Barton Bill (addresses liability for dry cleaning sites contaminated with perc).
- Organize cleaners to increase their voice in the political and regulatory processes; work for regulatory relief and recognition of success.

### ■ **EBMUD**

- Keep abreast of the dry cleaning industry; help consumers understand which cleaners are in compliance with regulations and what that means.

### ■ **San Ramon Services District:**

- Visit dry cleaners in the district in about once a year to determine what they need to learn.

■ **EFC9**

- Learn about future regulations pertaining to dry cleaners and alternative technologies and share the results of this dialogue with US EPA management.
- Educate consumers.

■ **Ecology Action**

- Provide information on the status of alternative technologies, processes, equipment, costs, etc.
- Look at ways to include dry cleaners' concerns in new regulation development and promote self-regulation.
- Work with KCCEB to set up peer leadership program, compliance training and wet cleaning marketing assistance with Korean dry cleaners.

■ **Korean Community Center of the East Bay (KCCEB):**

- Focus on voluntary compliance; help improve communication among cleaners.

■ **City of Oakland**

- Keep in mind the special concerns of dry cleaners with an emphasis on attraction/retention assistance (plants could move to other areas, reducing jobs in Oakland and continue to have “agencies/drop off facilities in Oakland).
- Look at job training opportunities in the fabricare industry.

# APPENDIX B

## Berkeley Dry Cleaning Pollution Prevention Charrette

### White Paper

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#### Introduction

Approximately 80 percent of dry-cleaning plants use perchloroethylene or “perc”. According to US EPA perc is a “probable human carcinogen”. Consequently, various federal and state agencies are developing more stringent regulations to control its use and disposal. These same agencies are also trying to encourage reduced reliance on perc.

The majority of dry-cleaning shops are small businesses run by individuals working long hours. The owners do not have time to spend researching fabricare alternatives, learning to use new equipment and solvents and marketing a relatively unknown technology. In addition, they are wary of investing in equipment that might not be effective for all fabrics and is unfamiliar to their clientele and is looked upon with suspicion by their industry association. Also, adding new equipment to their shop may require space they do not have. Finding and retaining skilled pressers is difficult, an important consideration since good fast pressing is essential in the wet cleaning process.

Wet cleaning, the use of computer-controlled washers and dryers to professionally clean delicate clothes in water, is a less toxic alternative to dry cleaning and studies have found that more than half of all fabrics labeled as requiring dry cleaning can be cleaned using wet cleaning. Additionally, a recent report by UCLA found that wet cleaning is both technically and economically feasible. However, there is only one wet cleaner operating in the nine county Bay Area (in San Francisco), while there are over 930 dry cleaners in the region. Nineteen dry cleaners operate plants in the City of Berkeley. One uses a petroleum-based solvent, rather than perc.

The City of Berkeley’s Economic Development Office is actively recruiting environmental businesses. Wet cleaning services qualifies as environmental and as such would fit in well with Berkeley’s growing “green valley”.

#### Berkeley Wet Cleaning Charrette

On May 19, 1998, the Environmental Finance Center for EPA Region IX (EFC9) held its second charrette which addressed the issue of how to introduce wet cleaning to the City of Berkeley. The focus questions were:

- How can at least one member of the dry cleaning community in Berkeley be convinced to offer wet cleaning services?
- How can a wet cleaning operator be induced to offer his/her services in Berkeley?

Eighteen individuals came to the charrette. They included two Berkeley-based dry cleaners, a former wet cleaner, a representative of the California Cleaners Association, and representatives from Ecology Action (a Santa Cruz-based non-profit organization focusing on waste reduction), East Bay Municipal Utilities District, US EPA Region IX, California EPA, Alameda County Green Business Program, City of Berkeley and City of Oakland, Progressive Asset Management, Inc. (a socially-responsible investment fund), and EFC9.

The following is an overview of the charrette discussion. The memo sent to all attendees describing the charrette and the attendee list can be found in Appendices E and F, respectively.

Considerable consulting assistance on charrette protocol and procedures were provided by Beth Hickey of EFC3 and Mahlon Aldridge of Ecology Action, who served as the charrette facilitator. The charrette began with a welcome and introductions. It then moved into Phase I-Discussion of Issues. During the lunch break, the charrette staff distilled the results of the Phase I discussion and wrote them up. After lunch the group reviewed that synopsis, made changes and then moved into Phase II-Discussion of Recommendations. The charrette concluded after Phase III-Next Steps.

## Issues Identified in the Wet Cleaning Charrette

After discussing the issues, the group divided the issues identified in Phase I into four categories:

- Technical feasibility;
- Costs and financial feasibility;
- Regulations regarding “transition”; and,
- Marketing and customer demand.

After the charrette, EFC9 and Ecology Action staff reviewed the wall notes and divided the issues raised into these four categories, as detailed below.

### ■ Technical Feasibility

The first set of issues dealt with whether wet cleaning works as well as dry cleaning both in terms of the quality of cleaning and its impact on the life of the garment. There were concerns about on what garments and fabrics wet cleaning is effective and ineffective, especially relative to dry cleaning. Also dry cleaners are concerned about how to deal with garment and fabric labeling and dyeing as fabric cleaners are liable for replacing a damaged garment if they do not follow the labeled instructions.

Participants commented on the lack of examples of successful wet cleaning businesses and places to learn about the equipment and how to use it most effectively. There is a shortage of reliable sources of information on wet cleaning which dry cleaners can understand and trust. Most of the information is developed by regulatory agencies and/or environmental organizations, neither of which are considered trustworthy sources.

In addition, dry cleaners raised the issue that there is a shortage of well-trained pressers. Good pressing is more important in wet cleaning than in dry cleaning since the technology requires extra pressing time and expertise.

One individual mentioned that dry cleaning franchisers may not be interested in allowing franchisees to use wet cleaning techniques instead of dry cleaning.

Participants were concerned about the capacity of wet cleaning machines, especially as compared to dry cleaning machines. According to Ecology Action, perc machines can handle a greater volume of clothing per hour than current wet cleaning equipment.

## ■ **Costs and Financial Feasibility**

Major fabricare cost items include:

- Equipment
- Solvents
- Labor
- Regulatory compliance
- Energy
- Water input & waste water output
- Solid and hazardous waste disposal

Dry cleaners are concerned about whether they can make money wet cleaning, after buying the necessary equipment and training the labor. Finding and paying for space for wet cleaning equipment is also a financial concern.

Sources of financing for the purchase of wet cleaning equipment are limited or hard to get, according to charrette participants. For example, funds for low-interest loans from the state to meet EPA's hazardous waste regulations (Hazardous Waste Loan Program) total about \$5 million; these are fully loaned out and therefore new loans can only be made when the old ones are paid off. US Small Business Administration loans are also difficult to get.

## ■ **Regulations Regarding "Transition"**

Agencies regulating, licensing and permitting the dry cleaning industry in Berkeley include:

- US EPA
- California EPA
- California Department of Health
- Bay Area Air Quality Management District (air)
- East Bay Municipal Utility District (water)
- City of Berkeley (land use, toxic disposal & business license)

The charrette participants commented that agencies which regulate the dry cleaning industry (due to the use of perc) have not provided incentives to incrementally transition to alternative cleaning methods and focus on regulation, not on alternatives. They perceive the regulatory incentives as requiring "all or nothing" by the compliance date.

There is fear of future regulation if dry cleaners switch to alternative cleaning methods and technology, such as water discharge regulations.

There was some discussion about the fact that the State of California used to license dry cleaners. The licensing process required dry cleaners to be trained and tested. Like many industries, dry cleaning has been de-regulated and some of the trade associations are concerned that this has reduced the level of professionalism and compliance in the industry.

The dry cleaning industry is quite fragmented--there are numerous trade associations including the Korean Dry Cleaning Association, the Chinese Dry Cleaning Association, the California Cleaners Association, the International Fabricare Institute, the Neighborhood Cleaning Association, and the International and National Cleaners Association. There is little communication among these associations.

Participants commented that regulators and government agencies don't understand dry cleaners' cultures, procedures and practices and that dry cleaners don't trust regulators and government employees. The dry cleaners said that regulatory agencies perceive dry cleaning as dangerous. All dry cleaners do not hold the same views regarding toxicity and public health risk. There are also language barriers; 60 percent of dry cleaners in the Bay Area are Korean.

Landlords' concern about liability issues associated with perc and petroleum-based solvents makes it hard to find space to operate a dry cleaning business.

### ■ **Marketing and Customer Demand**

There is little if any demand for wet cleaning, since most consumers don't know what it is. If they hear about it, they think it is laundry and that they can do it themselves at home. Dry cleaners believe that potential customers distrust the wet cleaning process.

Some dry cleaning customers only want their garments dry cleaned, even if they can be laundered at home. In other words, customers do not understand the dry cleaning and wet cleaning processes and how to appropriately clean their garments. According to the dry cleaners, it's hard to educate consumers.

There is concern that advertising for wet cleaning will have a negative tone because it may focus on the potential health effects of dry cleaning. This could create antagonisms in the fabricare industry.

## **PHASE II - DEVELOPING RECOMMENDATIONS**

As described above, the following recommendations were proposed in response to the issues identified.

### ■ **Technical Feasibility**

- Give dry cleaners concise, easy to understand comparative information on alternative fabricare cleaning equipment, methods, solvents, techniques, etc. in their own languages through trusted industry channels (such as trade associations and suppliers).

- Establish a National Wet Cleaning Association; if this is already in the works, learn about the status of such efforts and share it with the charrette participants
- Provide hands-on training and exposure to the actual equipment; for example, find funding for a mobile truck wet cleaning demonstration unit that could visit cleaners at their work sites. This project could be developed jointly by Alameda County, US EPA, and the Cities of Oakland and Berkeley.
- Provide businesses with information on P2 alternatives as part of the business tax license process.
- Create jobs by training pressers. The City of Berkeley may be able to provide funding for this purpose. Possible trainees include “at risk youth” and welfare recipients. Charrette participants noted that the culture/ethnicity of these potential trainees differs from that of dry cleaning operators. Therefore, the training would have to include a cultural sensitivity component.
- Provide information on alternative fabricare technologies and solvents at fabricare trade shows.

#### ■ **Costs and Financial Feasibility**

- Assemble short, easy to understand comparative cost information in the dry cleaners’ languages on fabricare alternatives and disseminate through trusted channels. If a mobile demonstration unit becomes operative, it’s staff should disseminate summaries of alternative equipment and costs.
- Provide wet cleaning equipment grants. However, some participants noted that if a wet cleaner received an equipment grant and were successful, other cleaners would be skeptical of replicating that situation since they would not necessarily receive a similar grant.
- Lobby the State of California to increase the pool of funds for low-interest loans to buy equipment which will result in reduced perc usage (Hazardous Waste Loan Program Funds).
- Publicize successful wet cleaning businesses which do not require subsidies.

#### ■ **Regulations Regarding “Transition”**

- Regulatory agencies, such as the State Department of Health and the Bay Area Air Quality Management District (BAAQMD) should create incentives for incremental transition to reduced perc usage. Charrette participants, particularly those from the City of Berkeley and US EPA should work with the BAAQMD Board (who are elected officials) to make this happen.
- Amend the City of Berkeley’s Hazardous Materials program fee structure to create incentives for transition. Sonoma County’s reduced fees for certified green businesses is a possible model.
- Alameda County’s Green Business Program should provide information on cost comparisons and marketing assistance through its certification process.
- Change garment labeling, garment manufacturing and fabric manufacturing to make wet cleaning more feasible and better known.

- Involve landlords in the transition process; determine the support and assistance they may require and that they can give.

### ■ **Marketing and Customer Demand**

- Conduct market research that identifies and characterizes actual wet cleaning customers who patronize wet cleaning shops nationally.
- Based on the research, develop targeted marketing campaigns to promote wet cleaning. Various methods include coupons, ads, yellow pages and articles in the local press, in publications of local environmental groups and chemically sensitive individuals.
- The City of Berkeley, EFC9 and Alameda County Green Business program should work together with wet cleaners to identify customers and create demand for wet cleaning. Alameda County should develop a marketing tool kit for wet cleaners
- The City of Berkeley should promote wet cleaning as part of its “green valley” by including wet cleaners in its green business directory, green business maps and at green business trade shows.
- Consider co-locating wet cleaners with other green businesses. For example, a local grocery store known for its fresh produce and large selection of organic fruits and vegetable (the Berkeley Bowl) is relocating. Space could be provided for a wet cleaner at the new site.

## **PHASE III - NEXT STEPS**

The charrette facilitator gave everyone a chance to share ways they and/or the organizations they represent could help promote wet cleaning and gathered suggestions for next steps.

### ■ **Resources Offered By Participants**

- The California Cleaners Association (CCA) is in the process of setting up several fabricare training centers, one in San Pedro at a vocational high school and another in Stockton at a model facility.
- US EPA could provide equipment to a fabricare training center, so long as it is not associated with a specific business.
- The Greater Oakland Permit Assistance Center can help with permitting issues--identifying all permits required and their associated costs. Their web site, <http://www.calgold.ca.gov>, tells visitors whom to contact for permitting assistance. They could provide comparison information on alternative fabricare technologies on their web site.
- The University of California at Berkeley Sustainable Business Center might be available to provide free marketing assistance, as could other university programs. For example, Haas Business School classes target a specific business for course work. The City of Berkeley could encourage a professor to select a wet cleaner.

- The East Bay Small Business Development Center can provide technical assistance and help through the University of California at Berkeley.
- The City of Berkeley can promote wet cleaning as part of its “green valley” by including mention of wet cleaners in its green business directory, green business maps and at green business trade shows. In addition, the City is very active in getting media coverage for local green businesses.
- East Bay Municipal Utility District (EBMUD) can provide publicity for wet cleaners in their billing insets and in their “Business to Business” newsletter.
- Ecology Action is working with the Korean and Chinese Dry Cleaning Associations and the California Cleaners Association to educate cleaners about their alternatives. Ecology Action provides training and workshops on wet cleaning. Ecology Action has a grant pending from the US EPA and the City and County of San Francisco for wet cleaning equipment purchase assistance and on-going training, marketing assistance and support from activist consumers.
- EBMUD can perform water audits and give tips on how to minimize water costs. Call Mirtha Ninayahuar at 510-287-1621 for more information. Also, EBMUD has multi-lingual staff who can help with outreach and translation services; there may be an opportunity for these EBMUD staff to assist with wet cleaning training programs. Dry cleaners transitioning to wet cleaning can participate in an EBMUD program that rewards companies reducing hazardous waste usage.
- The US EPA Pollution Prevention (P2) program can provide grant funding in the wet cleaning arena. For information, contact Eileen Sheehan at 415-744-2190.
- Pollution Prevention Librarian, Karen Sundheim, can conduct on-line searches for anyone needing information about pollution prevention. Ms. Sundheim can be reached at 415-744-1508.
- US EPA is funding translation of the UCLA report, “Pollution Prevention in the Garment Care Industry: Assessing the Viability of Professional Wet Cleaning”, into Korean and Chinese.
- Angela Barranco, the Small Business Ombudsman of the EPA Air Quality Division, can provide information on current research in the area of alternative fabric/garment care technologies. She can be reached at 415-744-1196.
- Alameda County Green Business Program (ACGBP) can link wet cleaners with pollution prevention organizations. They can provide information about how to reduce pollution, water use, energy, etc. In the long-term, the ACGBP hopes to certify wet cleaners. When this happens, the ACGBP will provide marketing and technical assistance to the certified businesses.
- The California Department of Toxic Substance Control (DTSC) can provide technical support for green business programs regionally. As part of the garment cleaning industry program, DTSC will:
  - define regulatory standards;
  - determine which dry cleaners are complying with regulations;
  - focus on regional awareness of certification; and
  - increase consumer awareness of wet cleaning.

## NEXT STEPS

- Ecology Action will send the Executive Summary of the UCLA report, “Pollution Prevention in the Garment Care Industry: Assessing the Viability of Professional Wet Cleaning”, to all charrette attendees.
- Ecology Action will search for funding programs to assist dry cleaners in transition.
- US EPA headquarters is talking with the Federal Trade Commission and other federal agencies about garment labeling, fabric design, etc. Anna Hackenbracht will provide information on the status of these meetings to all charrette attendees. Anna can be reached at 415-744-1634.
- US EPA Air Quality Division funds wet cleaning training workshops (with assistance from Ecology Action and the Korean Community Center of the East Bay). They will let charrette participants know about future training opportunities.
- Angela Barranco, the Small Business Ombudsman of the EPA Air Quality Division will search for model wet cleaning facilities which could offer hands-on training opportunities.
- Ms. Barranco will study the possibility of negotiating regulatory relief concessions with California Air Resources Board for “transitioners”.
- Kate Squire with the City of Berkeley will assess the need for pressers and the availability of funding for training them.
- Kate Squire will contact professors at the University of California at Berkeley Sustainable Business Center to determine if any of them would be available and interested in conducting a market study for wet cleaning.
- Kate Squire and/or Susan Blachman of EFC9 will talk with the participating dry cleaners as well as the other cleaners who expressed an interest in wet cleaning, but for various reasons could not attend the charrette, to assess their progress and determine what support, if any, they need.
- EFC9 will share this white paper with various individuals and organizations who expressed interest in the charrette, but could not attend. They include the Bay Area Air Quality Management District, the City of Berkeley Toxics Program, US EPA Green Business Program, California Hazardous Waste Loan Program, Whole Foods, the Korean Community Center of the East Bay, Gil Friend & Associates and several foundations (East Bay Community Foundation and Northern California Grantmakers Association).
- EFC9 is organizing another wet cleaning charrette. This one will be held in the evening or on a weekend and will be organized in conjunction with some of the industry trade associations. All the charrette participants will be notified about it.
- Cities of Oakland, and Berkeley, Alameda County, and US EPA, will search for funding for a mobile truck alternative fabricare demonstration project (about \$150,000).

# APPENDIX C1:

## Oakland Charrette Invitation Letter Sent to “Experts” Who Had Attended the Berkeley Charrette

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EFC9 *Environmental Finance Center, Region IX*

September 14, 1998

name  
address

Dear “expert”,

Thank you for participating in EFC9’s first wet cleaning charrette. Your contributions were invaluable and therefore we hope you will join us for our second charrette addressing the issue of how to encourage dry cleaners in the East Bay to offer less toxic fabricare such as wet cleaning, CO<sub>2</sub>, Rynex and petroleum-based solvents. (We will be inviting dry cleaners from Oakland and Berkeley.)

The charrette will be held on Sunday October 18 from 2:00-5:30 p.m. at the Rockridge Library community room upstairs, 5366 College Avenue.

Following this cover page you will find a one-page (two sided) memo describing the charrette.

Again, as before, should you choose to attend, your role will be to serve as an “expert”--someone knowledgeable about how to address similar issues. As such, we would like you to share your ideas and suggestions about how your organization and you as an individual can help the dry cleaning businesses that attend the charrette.

Feel free to contact me if you have any questions, comments and/or concerns and to let me know if you can or cannot attend. I can be reached by phone: 510-653-8797, fax: 510-451-4115 or e-mail: [sblachma@csuhayward.edu](mailto:sblachma@csuhayward.edu)

Thank you for your consideration.

Sincerely,

Susan Blachman  
Senior Associate

## APPENDIX C2:

### Oakland Charrette Invitation Letter Sent to New “Experts”

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*EFC9 Environmental Finance Center, Region IX*

September 14, 1998

name  
address

Dear “new expert”,

Reducing perchloroethylene usage in the dry cleaning community is a major pollution prevention objective nationwide. I am writing to invite you to help East Bay dry cleaners in this effort .

EFC9 is organizing a problem-solving focus group called a “charrette” addressing the issue of how to encourage dry cleaners in the East Bay to offer less toxic fabricare such as wet cleaning, CO2 Rynex, and petroleum-based solvents. The charrette will be held on October 18 from 2-5:30 p.m. at the Rockridge Library community room upstairs, 5366 College Avenue, Oakland.

Following this cover page you will find a one page two-sided memo describing the charrette.

Should you choose to attend, your role will be to serve as an “expert”--someone knowledgeable about how to address similar issues. As such, we would like you to share your ideas and suggestions about how your organization and you as an individual can help the dry cleaning businesses that attend the charrette.

Feel free to contact me if you have any questions, comments and/or concerns and to let me know if you can or cannot attend. I can be reached by phone: 510-653-8797, fax: 510-451-4115 or e-mail: sblachma@csu Hayward.edu

Thank you for your consideration.

Sincerely,

Susan Blachman  
Senior Associate

# APPENDIX C3:

## Oakland Charrette Invitation Letter Sent to Dry Cleaners

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EFC9 Environmental Finance Center, Region IX

September 14, 1998

name  
address

Dear dry cleaner,

Thank you for taking the time to talk with me on Friday. As you requested, I am sending you the following letter.

Cleaners all over the country are being forced to abandon perc and adopt alternatives or face closure; alternatives include wet cleaning, CO<sub>2</sub>, Rynex and petroleum-based solvents. We want your suggestions on what could help you reduce your perc usage without cutting your profits.

Please join me for a 3 1/2 hour problem-solving focus group called a "charrette" addressing this very issue. Representatives from the regulatory community, local government and non-profit organizations will be there to listen to your thinking and to work with you to figure out how they and their organizations can help.

The charrette will be held on October 18 from 2-5:30 p.m. at the Rockridge Library community room upstairs, 5366 College Avenue.

Following this cover page you will find a one page (two-sided) memo describing the charrette in more detail.

The Environmental Finance Center, Region IX (EFC9) is organizing the charrette. EFC9 is a university-based center providing expertise on environmental financing and economic issues. EFC9 is affiliated with California State University, Hayward and is supported under the auspices of the US EPA.

Feel free to contact me if you have any questions, comments and/or concerns and to let me know if you can or cannot attend. I can be reached by phone: 510-653-8797, fax: 510-451-4115 or e-mail: [sblachma@csuhayward.edu](mailto:sblachma@csuhayward.edu)

Thank you for your consideration.

Sincerely  
Susan Blachman, Senior Associate

# APPENDIX C4:

## Information Memo Included with Oakland Charrette Invitation

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### East Bay Dry Cleaning Pollution Prevention Charrette

#### Definition and Purpose

A charrette is a gathering of various groups of people in a community to resolve common problems with the assistance of outside experts within a specified time limit. It has also been called a problem-solving focus group.

It can be used to achieve different results including: the discovery of problems and issues of concern that need to be addressed, public feedback on a current or proposed regulation; intensive and individualized education and training; and brainstorming or creative thinking to solve problems.

In this case, the charrette problem statement starter questions are:

1. How to help dry cleaners reduce perc usage without reducing their profits.
2. How to encourage the dry cleaning community in Oakland and/or Berkeley to offer wet cleaning, Rynex and/or CO2 cleaning services?
3. How to get a wet cleaning, Rynex and/or CO2 operator to offer his/her services in Oakland and/or Berkeley?

#### Participants

Charrette participants include: clients (those who have the "problems"), experts (those who have helped solve similar problems in the past), a moderator/facilitator and a recorder. The objective is to keep attendance numbers small (not to exceed 20) so that an effective dialogue can take place.

#### Charrette Agenda

The charrette will last 3 1/2 hours. During the charrette, the recorder writes the salient issues on paper posted on walls all around the room so that participants can refer back to these at any time. These "wall notes" are subsequently used to document the charrette process.

2:00 Welcome and Introductions

2:15 Phase I-Discussion of Issue

1. problem statement presentation by moderator
2. review agenda
3. client presentations
4. question and discussion period
5. moderator summarizes discussion

3:30 Break

3:45 Phase II-Solutions and Recommendations

1. presentations by experts
2. questions and discussion
3. summarization by moderator

4:45 Break

5:00 Phase III-Next Steps

1. identify next steps and who will take them
2. identify unresolved questions
3. identify issues requiring further study
4. share resources

5:30 Adjourn

The ability of panelists and clients to question each other in an informal manner is crucial, and usually results in a clearer understanding of the real issues and in viable solutions. A relaxed atmosphere is encouraged during the charrette, which promotes give and take among participants. The moderator encourages everyone to participate in the discussion. The charrette is an interactive process and benefits from full participation from all attendees.

Benefits

Aside from offering creative solutions, charrettes serve to initiate dialogue and build relationships, offer intensive and individualized education and training, provide momentum for projects and build consensus among participants.

Background

Most dry-cleaning plants use perchloroethylene or “perc”. According to US EPA perc is toxic to both people and animals. Consequently, various federal and state agencies are developing more stringent regulations to control its use and disposal. These same agencies are also trying to encourage reduced reliance on perc.

Most dry-cleaning shops are small businesses run by individuals working long hours. They do not have time to spend researching fabricare alternatives, learning to use new equipment and solvents and marketing a relatively unknown technology. In addition, they are wary of investing in equipment that might not be effective for all fabrics and is unfamiliar to their clientele and looked upon with suspicion by their industry association. Also, adding new equipment to their shop may require space they do not have.

The City of Berkeley’s Economic Development Office is actively recruiting environmental businesses and the City of Oakland through its Sustainable Community Development Initiative is interested in promoting sustainable business practices. Wet cleaning, Rynex and liquid CO2 qualify as environmental and as such would fit in well with both cities visions.

Alternatives to Perc Dry Cleaning

Wet cleaning, the use of computer-controlled washers and dryers to professionally clean delicate clothes in water, is a less toxic alternative to dry cleaning. Studies have found that more than half of all fabrics labeled as requiring dry cleaning can be cleaned using wet cleaning.

Rynex is a solvent that, according to the manufacturer, is biodegradable, non-carcinogenic, non-flammable, recyclable and can be used in perc machines with minor modifications.

Another alternative to perc are petroleum-based cleaning solvents. Unlike motor vehicles, dry cleaners using petroleum solvents for cleaning do not emit carbon dioxide or other harmful emissions.. However, petroleum solvents are flammable and safety concerns exist around their use. According to a trade report, advances in machines has improved safety. Exxon Corporation has developed a synthetic hydrocarbon solvent called DF 2000, which has a flash point of 147 °F, making the flammability problem less of an issue.

Liquid carbon dioxide (CO<sub>2</sub>) can be used at high pressures to clean clothes. It is safe, cheap and abundant. No special disposal procedures are necessary. A major disadvantage is the high cost of equipment.

Date: October 18, 1998

Location: Rockridge Library Community Meeting Room, 5366 College Avenue, Oakland

# APPENDIX D:

## Oakland Charrette Attendance List

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John Lee  
Ideal Cleaners  
322 14th Street  
Oakland, CA 94612  
phone: 510-444-9586

Robert Akers  
Norge Village  
3908 Grand Avenue  
Oakland, CA 94610  
phone: 510-653-3435

Hyung Kim  
Monument Cleaners  
2250 Monument Blvd.  
Concord, CA 94520  
phone: 925-682-1195

Charles Lee  
Prospective Dry Cleaner  
190 Vivian Drive  
Pleasant Hill, CA 94523  
phone: 925-680-7700  
fax: 925-635-6100

Maria Sanders  
City of Oakland  
1330 Broadway, suite 310  
Oakland, CA 94612  
phone: 510-238-6766

Stan Archacki  
EBMUD  
P.O. Box 24055  
Oakland, CA 94623-1055  
phone: 510-287-1621

Anna Hackenbracht  
US EPA , Region 9  
75 Hawthorne Street  
San Francisco, CA 94105  
phone: 415-744-1634

Stephanie Olson  
Dublin/San Ramon Services  
District  
7399 Johnson Drive  
Pleasanton, CA 94588  
phone: 925-846-0568 x133

Kathy (Hae) Ko  
Korean Community Center of the  
East Bay  
4390 Telegraph Avenue, Suite E  
Oakland, CA 94609  
phone: 510-547-2662

Mahlon Aldridge  
Director  
P2 Programs  
Ecology Action  
P.O. Box 1188  
Santa Cruz, CA 95061-1188  
phone: 408-426-5925 x16

Sarah Diefendorf  
Executive Director  
EFC9  
851 West Midway Avenue  
Alameda, CA 94501-5012  
phone: 510-749-6867

Susan Blachman  
Associate Director  
EFC9  
851 West Midway Avenue  
Alameda, CA 94501-5012  
phone: 510-653-8797

Vicki Vasquez  
Administrative Manager  
EFC9  
851 West Midway Avenue  
Alameda, CA 94501-5012  
phone: 510-885-3554

Nicole Manzo  
Research Associate  
EFC9  
851 West Midway Avenue  
Alameda, CA 94501-5012  
phone: 510-749-6867

# APPENDIX D:

## Berkeley Charrette Informational Memo

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### M E M O R A N D U M

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**DATE:**

**TO:** Charrette Attendees

**FROM:** Susan Blachman, Environmental Finance Center Region IX & Mahlon Aldrige, Ecology Action

**RE:** Wet Cleaning Charrette Description

The following is a description of a charrette (a problem-solving focus group) to study how to encourage the operation of at least one wet cleaning business in Berkeley. We hope that this process will help reduce perchloroethylene pollution in Berkeley and support Berkeley's green business development efforts.

#### Definition

As noted above, a charrette is a problem-solving focus group; in other words, a meeting to solve a problem within a specified time limit.

"Charrette" was the common term used to describe the intense final effort made by architectural students to complete their solutions to given architectural problems in an allotted period of time. Currently, the term is gaining popularity to describe a gathering of various groups of people in a community to resolve common problems with the assistance of outside experts.

It can be used to achieve different results including: the discovery of problems and issues of concern that need to be addressed, public feedback on a current or proposed regulation; intensive and individualized education and training; and brainstorming or creative thinking to solve problems.

#### Participants

Charrette participants include: clients (those who have the "problems"), experts (those who have helped solve similar problems in the past), a moderator/facilitator and a recorder. The objective is to keep attendance numbers small (not to exceed 20) so that an effective dialogue can take place.

### Planning Process

The structuring of a charrette is similar to any other negotiated process. A steering committee representing all sides of the issue develops the problem statement and agenda. A clear agenda is necessary in order to establish the topics to be covered in the allotted time. However, the nature of the charrette is such that flexibility and informality must be encouraged as well. The committee is also responsible for preparing a packet of information on the issue(s) and providing it to all the potential participants prior to the charrette. All attendees should come prepared with their own questions and comments.

### Charrette Agenda

The charrette should last at least 4 hours. During the charrette, the recorder writes the salient issues on paper posted on walls all around the room so that participants can refer back to these at any time. These "wall notes" are subsequently used to document the charrette process.

The charrette begins with introductions of all the participants. The moderator/facilitator then presents the problem statement and reviews the agenda.

Next the client(s) elaborate on the problem statement by describing the issues to be resolved, including their grievances, concerns and observations. Usually the client(s) makes his/her/their presentation before questions are requested from the panel. This is to relieve any pressures the client(s) may have about speaking in front of a potentially "hostile" audience, or one that may not be favorably disposed to the client's position.

Once the client(s) complete their presentations, the moderator may summarize the issues to be resolved to ensure that all participants are at the same level of understanding. The client presentation is then followed by a question and discussion period in which everyone participates. It is at this point that vague concerns and viewpoints are clarified, consensus and disagreement points are identified and the discussion is advanced toward the solution phase.

The ability of panelists and clients to question each other in an informal manner is crucial, and usually results in a clearer understanding of the real issues. A relaxed atmosphere is encouraged during the charrette, which promotes give and take among participants. The moderator encourages everyone to participate in the discussion. The charrette is an interactive process and benefits from full participation from all attendees.

After a short break, the group reconvenes to discuss possible solutions/recommendations. This part of the charrette is led by the panel of experts. At any point the clients can interrupt to ask clarifying questions, analyze pros and cons of the proposals and make suggestions or modifications that build on the proposals. Once the panelists have finished their presentations, the moderator/facilitator can, if necessary, summarize the discussion.

Often a lunch break is provided to give the participants the opportunity to network and chat in a more casual setting. The charrette concludes with a discussion of the next steps to be taken which include identifying unresolved questions or issues that require further study. Sufficient time should be given to share new ideas that may come up during the lunch break.

Benefits

Aside from offering creative solutions, charrettes serve to initiate dialogue and build relationships, offer intensive and individualized education and training, provide momentum for projects and build consensus among participants.

## **Berkeley P2 Dry Cleaning Charrette**

### Background

Most dry-cleaning plants use perchloroethylene or “perc”. According to US EPA perc is toxic to both people and animals. Consequently, various federal and state agencies are developing more stringent regulations to control its use and disposal. These same agencies are also trying to encourage reduced reliance on perc.

Most dry-cleaning shops are small businesses run by individuals working long hours. They do not have time to spend researching fabricare alternatives, learning to use new equipment and solvents and marketing a relatively unknown technology. In addition, they are wary of investing in equipment that might not be effective for all fabrics and is unfamiliar to their clientele and looked upon with suspicion by their industry association. Also, adding new equipment to their shop may require space they do not have.

Wet cleaning is a less toxic alternative to dry cleaning. Studies have found that more than half of all fabrics labeled as requiring dry cleaning can be cleaned using wet cleaning. A recent report by UCLA found that wet cleaning is both technically and economically feasible. There is only one wet cleaner operating in the 9 county Bay Area (in San Francisco), while there are over 930 dry cleaners in the region. About 20 dry cleaners operate plants in the City of Berkeley.

The City of Berkeley’s Economic Development Office is actively recruiting environmental businesses. Wet cleaning services qualifies as environmental and as such would fit in well with Berkeley’s growing “green valley”.

### Problem Statement Starter Questions

1. How can at least one member of the dry cleaning community in Berkeley be convinced to offer wet cleaning services?
2. How can a wet cleaning operator be induced to offer his/her services in Berkeley?
2. What role can the dry cleaning operator’s landlord play in this process?

### Issues Charrette May Address:

- barriers to entry
- space constraints
- financing
- marketing
- training and technical assistance
- regulation and licensing
- business assistance

### Agenda

- 10:00 Welcome and Introductions  
10:15 Phase I-Discussion of Issue  
12:00 Lunch  
1:00Phase II-Discussion of Recommendations

Dry Cleaning Pollution Prevention Charrettes - Final Report

2:15 Break

2:30 Next Steps

3:00 Adjourn

Date: May 19, 1998

Location: City of Berkeley, Office of Economic Development, Permit Service Center, 2nd Floor, 2118 Milvia Street at Center Street

# APPENDIX F:

## Berkeley Charrette Attendance List (needs correcting)

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John Wolihan  
Mother Earth Cleaners  
PO Box 438  
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